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PATENT & TRADEMARK OFFICE

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re U.S. Letters Patent of:)
) Application No.: **10/682,304**
Kammhoff et al.)
) Examiner: **T. Trieu**
Patent No.: **6,960,070**)
) Art Unit: **3748**
Issued: **November 1, 2005**)
For: **COMPRESSOR**

Certificate
NOV 22 2005
of Correction

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
ATTENTION: Certificate
of Correction Branch

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 **ATTENTION: Certificate of Correction Branch** on November 15, 2005.

By: Carol Prentice
CAROL PRENTICE

REQUEST FOR CERTIFICATE OF CORRECTION PURSUANT TO 37 C.F.R. §1.322

Dear Sir:

Transmitted herewith is a Certificate of Correction for U.S. Patent No. 6,960,070 which issued November 1, 2005. Upon reviewing the patent, the patentees noted errors were made by the Patent and Trademark Office in printing the patent. Specifically, there are minor typographical errors in claims 22 and 23.

A Certificate of Correction is enclosed, and reads as follows:

(1) Column 11, line 59, "as defined in claim 1" should read: --as defined in claim 21--.

(2) Column 11, line 63, "as defined in claim 26" should read: --as defined in claim 22--.

A copy of the last Amendment dated May 23, 2005 is enclosed (with the claim numbers written in as renumbered in the

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patent)evidencing the requested corrections in claims 22 and 23.

Since the errors for which a Certificate of Correction are sought were the result of Patent and Trademark Office mistakes, no fee is due (35 U.S.C. §254). The issuance of the enclosed Certificate of Correction is therefore respectfully requested.

Attached hereto, in duplicate, is Form PTO-1050, with at least one copy being suitable for printing.

Please send the Certificate to Patentees' undersigned representative.

Respectfully submitted,

Douglas M. McAllister
Attorney for Applicant(s)
Registration No. 37,886
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Monroe, CT 06468
(203) 459-0200

ATTORNEY DOCKET NO.: HOE-783
Date: November 15, 2005

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PATENT & TRADEMARK OFFICE

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
)
Kammhoff, et al.) Examiner: T. Trieu
)
Serial No.: 10/682,304) Art Unit: 3748
)
Filed: October 8, 2003)
)

For: **COMPRESSOR**

MAIL STOP: AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first-class mail in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on: May 23, 2005.

Signature: Carol Prentice
Carol Prentice

AMENDMENT AFTER FINAL

Dear Sir:

This Amendment is responsive to the final Office Action mailed on March 25, 2005. Please amend the above-identified U.S. patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Cancelled).

2. (Currently amended) Compressor as defined in claim ~~1~~ 37, wherein the oil separator is arranged in said space between the outer housing and the drive unit in a direction transverse to the central axis.

3. (Currently amended) Compressor as defined in claim ~~1~~ 37, wherein the space between the outer housing and the drive unit extends essentially over an entire extension of the drive unit in a direction parallel to the central axis.

4. (Original) Compressor as defined in claim 2, wherein the space surrounds the drive unit.

5. (Previously presented) Compressor as defined in claim 2, wherein oil separated by the oil separator moves in the direction of an oil sump and refrigerant flows in the direction of an intake chamber of the scroll compressor.

6. (Original) Compressor as defined in claim 2, wherein refrigerant enters the space after cooling the drive motor.

7. (Currently amended) Compressor as defined in claim ~~1~~ 37, further comprising:

a bearing unit for the drive shaft, said bearing unit comprising a first bearing member connected to the outer housing,

wherein the oil separator is arranged at least in sections on an outer side of the first bearing member.

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wherein the oil separator is arranged at least in sections on an outer side of the first bearing member.

✓8. (Original) Compressor as defined in claim 7, wherein the oil separator is arranged so as to surround the first bearing member at least in sections.

✓9. (Currently amended) Compressor as defined in claim ~~1~~ 37, wherein the oil separator is arranged at least in sections on an outer side of the motor housing.

✓10. (Original) Compressor as defined in claim 9, wherein the oil separator is arranged so as to surround the motor housing at least in sections.

✓11. (Currently amended) Compressor as defined in claim ~~1~~ 37, wherein the oil separator uses part of the space located between the outer housing and the drive unit.

✓12. (Original) Compressor as defined in claim 11, wherein the space between the outer housing and the drive unit used by the oil separator is an annular space.

38 13. (Currently amended) Compressor as defined in claim ~~1~~ 24 37, wherein the refrigerant experiences a deflection in an azimuthal direction in relation to the central axis when entering the oil separator.

37 14. (Currently amended) Compressor ~~as defined in claim 13,~~ for refrigerant, comprising:

an outer housing,

a scroll compressor arranged in the outer housing and having a first compressor member arranged stationarily in the outer housing and a second compressor member movable relative to the first compressor member, said compressor members each having a base and first and second scroll ribs, respectively, rising above the respective base, said ribs engaging in one another such that the second compressor member is movable relative to the first compressor member on an

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orbital path about a central axis for the purpose of compressing the refrigerant,

a drive unit for the second compressor member with an eccentric drive,

a drive shaft,

a drive motor arranged in a motor housing,

a flow path for drawn-in refrigerant, said flow path guiding said drawn-in refrigerant into said motor housing, around said drive motor, and from said motor housing into a space between said motor housing and said outer housing prior to said refrigerant entering said scroll compressor,

an oil separator arranged in said space between the outer housing and said motor housing in said flow path prior to the scroll compressor,

wherein the refrigerant experiences a deflection in opposite azimuthal directions in relation to the central axis when entering the oil separator.

15. (Currently amended) Compressor as defined in claim ~~1~~ 24, wherein the refrigerant is guided in the oil separator essentially on an azimuthal path around the central axis.

16. (Currently amended) Compressor as defined in claim ~~1~~ 37, wherein the refrigerant flows in the oil separator along ~~an~~ the inner wall surface of the outer housing.

17. (Currently amended) Compressor as defined in claim ~~1~~ 37, wherein oil settling in the oil separator flows into an oil sump on a path extending outside the motor housing.

18. (Previously presented) Compressor as defined in claim ~~17~~ 14, further comprising:

a bearing unit for the drive shaft, said bearing unit comprising a first bearing member connected to the outer housing,

wherein the oil sump is arranged in the outer housing on a side of the drive motor located opposite the first bearing member.

19. (Currently amended) Compressor as defined in claim ~~1~~ 37, further comprising:

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a bearing unit for the drive shaft, said bearing unit comprising a first bearing member connected to the outer housing,

wherein the refrigerant flows around an outer side of the first bearing member on its way from the oil separator to an intake chamber of the scroll compressor.

20. (Currently amended) Compressor as defined in claim ~~1~~ 37, further comprising:

a bearing unit for the drive shaft, said bearing unit comprising a first bearing member connected to the outer housing,

wherein the oil separator is located on a side of supporting arms facing an oil sump, said supporting arms connecting the first bearing member to the outer housing.

21. (Original) Compressor as defined in claim 20, wherein the refrigerant passes between the supporting arms in the direction of an intake chamber of the scroll compressor after flowing through the oil separator.

22. (Currently amended) Compressor as defined in claim ~~1~~ 37, wherein the refrigerant flows directly into the motor housing when entering the compressor and enters the oil separator after flowing through the motor housing.

23. (Currently amended) Compressor as defined in claim ~~1~~ 37, wherein the refrigerant entering the motor housing experiences a deflection in at least one azimuthal direction.

24. (Currently amended) Compressor ~~as defined in claim 23,~~ for refrigerant, comprising:

an outer housing,

a scroll compressor arranged in the outer housing and having a first compressor member arranged stationarily in the outer housing and a second compressor member movable relative to the first compressor member, said compressor members each having a base and first and second scroll ribs, respectively, rising above the respective base, said ribs engaging in one another such that the second compressor member is movable relative to the first compressor member on an

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orbital path about a central axis for the purpose of compressing the refrigerant,

a drive unit for the second compressor member with an eccentric drive,

a drive shaft,

a drive motor arranged in a motor housing,

a flow path for drawn-in refrigerant, said flow path guiding said drawn-in refrigerant into said motor housing, around said drive motor, and from said motor housing into a space between said motor housing and said outer housing prior to said refrigerant entering said scroll compressor,

an oil separator arranged in said space between the outer housing and said motor housing in said flow path prior to the scroll compressor,

wherein the refrigerant entering the motor housing experiences a deflection in opposite azimuthal directions.

21 25. (Currently amended) Compressor as defined in claim ~~1~~ 37, wherein the refrigerant enters the motor housing at the level of a first winding head when seen in the direction of the central axis.

22 26. (Original) Compressor as defined in claim 21 25, wherein the refrigerant, when seen in the direction of the central axis, flows through the drive motor from the first winding head in the direction of a second winding head.

23 27. (Previously presented) Compressor as defined in claim 22 26, wherein the refrigerant exits from the motor housing at the level of the second winding head.

24 28. (Currently amended) Compressor as defined in claim ~~1~~ 37, wherein oil separating in the motor housing exits from the motor housing through oil discharge openings in a base of the motor housing in order to reach an oil sump.

25 29. (Currently amended) Compressor as defined in claim ~~1~~ 37, further comprising:

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a bearing unit for the drive shaft, said bearing unit comprising a first bearing member connected to the outer housing,

wherein the first bearing member has an oil guide for oil used for the lubrication of the eccentric drive.

26 30. (Original) Compressor as defined in claim 25 29, wherein the oil guide means opens into an interior space of the motor housing.

27 31. (Original) Compressor as defined in claim 26 30, wherein considerable portions of the oil are conveyed to the oil separator by the refrigerant flowing through the interior space of the motor housing.

28 32. (Previously presented) Compressor as defined in claim 25 29, wherein the oil guide opens into the space.

29 33. (Currently amended) Compressor as defined in claim ~~1~~ 37, wherein the drive shaft has a bore for lubricating oil.

30 34. (Previously presented) Compressor as defined in claim 29 33, further comprising:

a bearing unit for the drive shaft, said bearing unit comprising a first bearing member connected to the outer housing,

wherein a lubrication of a rotary bearing for the drive shaft in the first bearing member is brought about via the bore for lubricating oil.

31 35. (Original) Compressor as defined in claim 29 33, wherein a lubrication of the eccentric drive is brought about via the bore for lubricating oil.

36. (Cancelled).

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37. (Currently amended) Compressor for refrigerant, comprising:

an outer housing,

a scroll compressor arranged in the outer housing and having a first compressor member arranged stationarily in the outer housing and a second compressor member movable relative to the first compressor member, said compressor members each having a base and first and second scroll ribs, respectively, rising above the respective base, said ribs engaging in one another such that the second compressor member is movable relative to the first compressor member on an orbital path about a central axis for the purpose of compressing the refrigerant,

a drive unit for the second compressor member with an eccentric drive,

a drive shaft,

a drive motor arranged in a motor housing and having drawn-in refrigerant flowing through said drive motor, the refrigerant after flowing through said drive motor exiting from said motor housing, through ~~a portion~~ an exit opening of said motor housing facing said outer housing and defining a space between said outer housing and said motor housing, into a section of said space and flowing through an oil separator prior to entering the scroll compressor,

said oil separator being arranged inside the outer housing in said space between the outer housing and said motor housing, said refrigerant when entering said oil separator experiencing a deflection in an azimuthal direction in relation to the central axis caused by a deflection unit having at least one deflection surface arranged opposite the exit opening in said space and said refrigerant being guided in said azimuthal direction by an inner wall face of said outer housing and an outer wall face of said motor housing in order to deposit oil thereon.

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REMARKS

This Amendment is responsive to the final Office Action mailed on March 25, 2005. Claims 2, 3, 7, 9, 11, 13-17, 19, 20, 22-25, 28, 29, 33 and 37 are amended. Claims 1 and 36 are cancelled. Claims 2-35 and 37 are pending.

The Examiner has indicated that claims 14 and 24 contain allowable subject matter.

As a preliminary matter, Applicants would like to thank the Examiner for the courteous and productive telephone interview held on May 4, 2005, the details of which are set forth below.

Claims 1-12, 16-22, and 25-37 were rejected under 35 U.S.C. § 102(b) as being anticipated by Inaba (4,592,703).

Claims 13, 15, and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Inaba in view of Kimata (JP 2000-345978).

Applicants respectfully traverse these rejections in view of the amended claims and the following comments.

Summary of May 4, 2005 Examiner Interview

A telephone interview was held with the Examiner on May 4, 2005, during which the final Office Action and the cited references were discussed. Applicants' counsel and the Examiner reached an agreement that claim 37 was allowable over the prior art of record. However, the Examiner indicated that a clarifying amendment to claim 37 was required. In particular, the Examiner indicated that structural limitations must be added to the claim describing the structure that enables the deflection in the azimuthal direction.

The Examiner indicated that claims 1 and 36 should be cancelled, and that the dependent claims could be amended to depend from claim 37.

As discussed below, the claims are amended herein as discussed and agreed with the Examiner. The Examiner indicated that such claim amendments would be permitted at this time after issuance of the final Office Action, and would place the application into condition for allowance.

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Discussion of Amended Claims

Claims 1 and 36 are cancelled in accordance with the agreement reached with the Examiner during the telephone interview held on May 4, 2005.

Claim 37 is amended to specify that the deflection in the azimuthal direction is caused by a deflection unit having at least one deflection surface arranged opposite the exit opening in the space between the outer housing and the motor housing. This amendment is in accordance with the clarifying amendment requested by the Examiner, and includes the structure of the deflection unit as described at page 18 of Applicants' specification as requested by the Examiner. With these amendments to claim 37, the Examiner indicated that claim 37 would be in condition for allowance.

Claims 14 and 24, which the Examiner has indicated contain allowable subject matter, are amended into independent form by the inclusion of the subject matter of claim 1.

Claims 2, 3, 7, 9, 11, 16, 17, 19, 20, 22, 23, 25, 28, 29, and 33 are amended to depend from independent claim 37, rather than cancelled claim 1.

Claims 13 and 15 are amended to depend from independent claim 24, rather than cancelled claim 1.

The foregoing amendments conform to those discussed with the Examiner during the telephone interview on May 4, 2005. The Examiner agreed that such amendments would be entered after final and would place the application into condition for allowance. Applicants' respectfully submit that the application is now in condition for immediate allowance.

Withdrawal of the rejections under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a) is respectfully requested.

Further remarks regarding the asserted relationship between Applicant's claims and the prior art are not deemed necessary, in view of the amended claims, the foregoing discussion, and the agreement reached during the Examiner Interview. Applicants' silence as to any of the Examiner's comments is not indicative of an acquiescence to the stated grounds of rejection.

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Conclusion

The Examiner is respectfully requested to reconsider this application, allow each of the pending claims and to pass this application on to an early issue. If there are any remaining issues that need to be addressed in order to place this application into condition for allowance, the Examiner is requested to telephone Applicants' undersigned attorney.

Respectfully submitted,

Douglas M. McAllister
Attorney for Applicant(s)
Registration No.: 37,886
Lipsitz & McAllister, LLC
755 Main Street
Monroe, CT 06468
(203) 459-0200

ATTORNEY DOCKET NO.: HOE-783
Date: May 23, 2005

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

Page 1 of 1

PATENT NO. : 6,960,070
APPLICATION NO.: 10/682,304
ISSUE DATE : November 1, 2005
INVENTOR(S) : Kammhoff et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 11, line 59, "as defined in claim 1" should read: --as defined in claim 21--.

Column 11, line 63, "as defined in claim 26" should read: --as defined in claim 22--.

MAILING ADDRESS OF SENDER (Please do not use customer number below):

Lipsitz & McAllister, LLC
755 Main Street - Building 8
Monroe, CT 06468

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Page 1 of 1

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